

## CLAIMS

1. An analog resistive-film type thin-frame touch panel, comprising:

5 a lower-side electrode member (2) having a lower-side transparent electrode (22) on a part of a top face of a lower-side transparent insulating base member (21), a pair of lower-side bus bars (23, 24) disposed on two parallel sides of the lower-side transparent electrode, and lower-side external terminal connection portions (303, 304, 10 323, 324) disposed on a portion other than the lower-side transparent electrode and connected to the lower-side bus bars; and

an upper-side electrode member (1) having an upper-side transparent electrode (12) on a part of a bottom 15 face of an upper-side transparent insulating base member (11) having flexibility, a pair of upper-side bus bars (13, 14) disposed on two parallel sides of the upper-side transparent electrode, and upper-side external terminal connection portions (301, 302, 313, 314) disposed on a 20 portion other than the upper-side transparent electrode and connected to the upper-side bus bars,

the lower-side electrode member and the upper-side electrode member being disposed facing each other via an insulative spacer (3) in such a way that the upper-side 25 bus bars and the lower-side bus bars are arranged in a

square pattern, and being bonded at peripheral portions,  
wherein

the lower-side bus bars are formed from metal  
thin wires (8, 223, 224) with a wire diameter of 30 to 100  
5  $\mu\text{m}$  and the upper-side bus bars are formed from metal thin  
wires (8, 113, 114) with a wire diameter of 30 to 100  $\mu\text{m}$ .

2. The thin-frame touch panel as defined in Claim 1,  
wherein

the lower-side electrode member (2) further has  
10 lower-side routing circuits (25, 26) disposed on the  
portion other than the lower-side transparent electrode,  
for connecting the lower-side bus bars and the lower-side  
external terminal connection portions,

the upper-side electrode member (1) further has  
15 upper-side routing circuits (15, 16) disposed on the  
portion other than the upper-side transparent electrode,  
for connecting the upper-side bus bars and the upper-side  
external terminal connection portions, and

the lower-side routing circuits are formed from  
20 metal thin wires (8) with a wire diameter of 30 to 100  $\mu\text{m}$   
and the upper-side routing circuits are formed from metal  
thin wires (8) with a wire diameter of 30 to 100  $\mu\text{m}$ .

3. The thin-frame touch panel as defined in Claim 2,  
wherein the metal thin wires (8) constituting each of the  
25 lower-side routing circuits and the upper-side routing

circuits are extended to outsides of the lower-side electrode member and the upper-side electrode member to constitute the lower-side external terminal connection portions and the upper-side external terminal connection portions.

4. The thin-frame touch panel as defined in Claim 1, wherein the lower-side bus bars and the lower-side external terminal connection portions are directly connected and the lower-side bus bars and the lower-side external terminal connection portions are formed from metal thin wires (223, 224) with a wire diameter of 30 to 100  $\mu\text{m}$ , while the upper-side bus bars and the upper-side external terminal connection portions are directly connected and the upper-side bus bars and the upper-side external terminal connection portions are formed from metal thin wires (113, 114) with a wire diameter of 30 to 100  $\mu\text{m}$ , and the metal thin wires of the upper-side external terminal connection portions and the metal thin wires of the lower-side external terminal connection portions are extended to outsides of a region where the lower-side electrode member and the upper-side electrode member are bonded to each other.

5. The thin-frame touch panel as defined in any one of Claims 1 to 4, wherein in the upper-side electrode member, the metal thin wire are fixed onto the upper-side

transparent insulating base member via a conductive paste (92, 93, 6) and in the lower-side electrode member, the metal thin wires are fixed onto the lower-side transparent insulating base member via a conductive paste (92, 93, 6).

5 6. The thin-frame touch panel as defined in any one of Claims 1 to 4, wherein in the upper-side electrode member, the metal thin wires are covered with a conductive paste (93, 6) and fixed onto the upper-side transparent insulating base member and in the lower-side electrode  
10 member, the metal thin wires are covered with a conductive paste (93, 6) and fixed onto the lower-side transparent insulating base member.

7. The thin-frame touch panel as defined in Claim 6, wherein a lower-side covering layer formed by being covered  
15 with the conductive paste (93, 6) in at least either one of a bend portion (151) of the lower-side routing circuit and the lower-side bus bar in the lower-side electrode member has a width ( $D_2$ ) 2 to 5 times larger than a diameter ( $D_1$ ) of the metal thin wire (8, 223, 224) in the lower-side  
20 electrode member, and a lower-side covering layer formed by being covered with the conductive paste (93, 6) in other portions has a width ( $D_2$ ) 1 to 5 times larger than the diameter ( $D_1$ ) of the metal thin wire (8, 223, 224) in the lower-side electrode member, while an upper-side covering  
25 layer formed by being covered with the conductive paste (93,

6) in at least either one of a bend portion (151) of the upper-side routing circuits and the upper-side bus bars in the upper-side electrode member has a width ( $D_2$ ) 3 to 5 times larger than a diameter ( $D_1$ ) of the metal thin wire (8, 113, 114) in the upper-side electrode member, and an upper-side covering layer formed by being covered with the conductive paste (93, 6) in other portions has a width ( $D_2$ ) 2 to 5 times larger than the diameter ( $D_1$ ) of the metal thin wire (8, 113, 114) in the upper-side electrode member.

8. The thin-frame touch panel as defined in any one of Claims 1 to 4, wherein a specific resistance value of the metal thin wire is  $20 \times 10^{-6} \Omega \cdot \text{cm}$  or less.

9. The thin-frame touch panel as defined in Claim 8, wherein the metal thin wire on the transparent insulating base member and its periphery are covered with a conductive paste with a specific resistance value of  $1 \times 10^{-4} \Omega \cdot \text{cm}$  or less.